

caring not for structure if they are only "handsome!" Let the microscope be a tool for earnest study—not the plaything of an idle hour!

The book is amply illustrated with useful, though small, drawings—not pictures—and contains many helpful artificial keys to genera and species, with references to standard works of more special character. It deserves a large sale.

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## NOTES AND NEWS.

M. PHILIBERT describes a new Bryum, *B. Corbieri* from northwestern France in the *Revue Bryologique* No. 2, 1887.

DR. ALBERT KELLOGG, the veteran botanist of the Pacific slope, died March 31st, at Alameda, California, at the age of seventy-four years.

AN AMATEUR botanical club has recently been formed at Washington with a membership of about twenty-five. Miss Flora N. Vasey is secretary.

IN THE *Revue Bryologique* No. 2, 1887, Dr. S. O. Lindberg describes three new species of Hepaticæ from Portugal, *Marsupella profunda*, *Anthoceros constans* and *A. multilobulus*.

A YOUNG Italian mycologist, the Abbe Ben. Scortechini, an explorer of Australia and further India, died a short time ago at Calcutta. A genus of fungi commemorates his services.

THE AMERICAN ASSOCIATION for the Advancement of Science will meet in New York City, beginning August 10. It will probably be interestingly warm in the city at that date, but the sea beach is near.

DR. DIDRIK FERDINAND DIDRICHSEN, seventy-two years of age, died on March 19. He was professor of botany in the University of Copenhagen from 1875 to 1885, and for thirty years previous held important botanical offices.

THE CORNELL BOTANICAL CLUB, of Chenango County, New York, has recently been organized, with F. V. Coville as president. It is the direct outgrowth of the enthusiasm in the study of the flora of Central New York, emanating from Cornell University.

MR. A. P. MORGAN, in continuation of his "Mycologic Flora of the Miami Valley, Ohio," has just distributed a paper on Hydnei. The seven genera are represented as follows: *Hydnum* 30 species (one new), *Irpex* 6, *Radulum* 3, *Phlebia* 3, *Grandinia* 1, *Odontia* 2, *Kneiffia* 1.

ONE OF THE rarest and least known mosses of Europe, *Didymodon subalpinus*, has lately been collected in Switzerland, on the Rigi, at an altitude of 1,400 meters, by MM. Van den Broeck and Dens. Heretofore it has been known only from a small specimen without a capsule in the herbarium of De Notaris.

PROFESSOR PENHALLOW, of Montreal, has issued a quarto memoir, reprinted from the Transactions of the Royal Society of Canada, on "Mechanism of movement in *Cucurbita*, *Vitis*, and *Robinia*." The memoir puts into final form the work already recorded by the author in the *American Journal of Science*, under the title "Tendrils movements in *Cucurbita maxima* and *C. Pepo*," with some additional notes on the tendrils of *Cucurbitaceæ*.



THE ITALIAN JOURNAL OF BOTANY for April contains an account of experiments on the parasitism of *Agaricus melleus* Vahl, by L. Savastano; a new species of *Tecoma* (*T. Ricasoliana*), by E. Tanfani; some Venetian Diatomaceæ, Cyanophyceæ, and Chlorophyceæ, by G. B. de Toni and David Levi; and Flora of Otranto, by Enrico Groves.

AT A RECENT meeting of the Linnæan Society Sir John Lubbock, among other phytological observations, accounted for the peculiar shape of *Liriodendron* leaves by the manner in which the young leaves are packed in the bud. He affirms that the peculiar arrangement of the young leaves will satisfactorily account for the remarkable form of the leaf.

THE FIFTH *livraison* of Husnot's *Muscologia Gallica* has been issued. It contains descriptions and figures of the species of *Grimmia* (continued from part four), *Rhacomitrium*, *Hedwigia*, *Coscinodon*, *Ptychomitrium*, *Glyphomitrium*, *Amphoridium*, *Zygodon*, *Ulota*, and the first five species of *Orthotrichum*. The illustrations are lithographed by the author, and are improving. The difficult genus *Orthotrichum* is being specially elaborated by Dr. Venturi.

PROF. N. S. SHALER presents a thoughtful, instructive and well illustrated article upon the forests of North America in the May number of *Scribner's Magazine*. He considers the rôle of the forests in geological periods, the factors which have determined the relative abundance of different species, the relation to moisture precipitation, the production and maintenance of soils, the supply of timber, and many other questions of scientific, economic and general interest.

IN A PAPER before the Physiological Society of Berlin, February 25, Prof. Kronecker and Fräulein Rink reported an investigation which demonstrated that in peptone solution two kinds of bacteria are developed in the presence of air: *Bacillus restituens*, which transformed the peptone into serous albumen, exactly in the same way as did the living mucous membrane of the stomach; and *Bacillus virescens*, which liquified the alimentary gelatine and imparted a deep blue coloring to all sterilized substrata when exposed to the air. This latter bacillus operated poisonously on the heart.

M. THEOPHILE DURAND, sub-curator of the herbarium of the Brussels Botanic Garden, has prepared an index to the three volumes of Bentham and Hooker's *Genera Plantarum*, comprising the names of the genera, the principal synonyms, and the number and geographical distribution of the species. The genera are numbered consecutively, and arranged alphabetically as well as systematically. Such a work will be of vast service in herbaria and libraries. The subscription price is twenty francs, and application should be made to M. Durand, at the Botanic Garden, Brussels.

DR. C. C. PARRY has just distributed a short paper on "The Pacific Coast Alders," reprinted from *Bull. Calif. Acad. Sci.* ii., 7, and points out the value and importance of correcting systematic descriptions by careful and intelligent field observations. There can be no doubt that many descriptions are faulty, when made only from dried specimens, in the very points that a study of the living forms would correct. It may be said that such evanescent characters could hardly be of use in classification, which, after all, must be done mostly in the herbarium; but the question is not so much what characters we can preserve as what are the relationships of plants as shown by all sorts of characters, the best of



which may only be recorded in field observations. Hence, this disposition to study plants *in situ* can not be too highly commended. In the case before us, by this sort of study, Dr. Parry is convinced that the four species of alder enumerated in the Botany of California must be reduced to the earliest described species, *Alnus rhombifolia* Nutt. It is, by the way, a more encouraging sign when open air study combines species than when it multiplies them in a way that no herbarium student can follow.

MISS J. E. WHITESIDE, of Harmonsburg, Pa., writes: "Last season a rose bush which for ten years past has borne double roses, took a strange freak. The two central stalks produced an abundance of large-petaled, perfect, single blossoms, while the outer stalks continued the usual double ones. It evidently was a reversion to the parent, which possibly had been *Rosa Carolina*, as the single blossoms were in clusters. The double ones were borne singly. The bush stood in a situation where it received a great deal of water, and that may have caused it to revert, as the blossoms and leaves both pointed to a healthy condition of the plant."

DR. LUCIEN M. UNDERWOOD, of Syracuse University, with the assistance of Mr. O. J. Cook, is actively engaged in getting together material for issuing sets of Exsiccatae of the Hepaticae. The series will commence with an issue of two decades, illustrating at least nineteen genera and, if possible, all four orders. These decades will be issued at a reasonable price in order that they may be obtained by beginners in the study of Hepaticae, for whose help they are specially intended. It is hoped to have these sets ready this summer. Subsequent issues will illustrate rarer forms so far as they can be obtained. We are glad to be able to announce so important an undertaking and wish the projectors abundant success. They will be glad to have the assistance and co-operation of botanists. At present a supply of *Riccia* and *Anthoceros* is specially desired.

THE PROCEEDINGS of the Edinburgh Botanical Society, vol. xvi, part iii, just distributed, contains the following articles of general interest: A forest tour in Prevence and the Cevennes, by Major F. Bailey; Fertilization of *Epipactis latifolia*, and growth and fertilization of *Cypripedium Calceolus*, by A. D. Webster; Method of transmitting living plants abroad, by Robert Lindsay; Adaptation of *Albuca* to insect fertilization, by John Wilson; Certain properties of rosewood and other hard woods, by A. Galletly; Inflorescence, floral structure, and fertilization of *Scrophularia aquatica* and *S. nodosa*, by T. W. Fulton; Marine Algæ of Joppa (County of Mid-Lothian), by Geo. W. Traill; Nature and cause of variation in plants, by Patrick Geddes; Distribution of marine algæ of Firth of Forth, by John Rattray; Certain points in the morphology of *Frullania*, etc., by Prof. Alexander Dickson.

MR. RALPH SYDNEY SMITH has published an earnest appeal for the preservation of a Redwood park north of Santa Cruz. In remarking upon this important subject, Dr. Gray (*American Journal of Science*) says: "If nothing is done to preserve for posterity a specimen of Redwood forest, including if possible some of the large trees, future and not far distant generations of Californians will have cause to revile the memory of their forefathers. Time was when we had hoped for a government reservation of such forest, of ten miles square, in the northwestern part of the state, and it would have cost nothing. But the plan now broached, although it will cost something, has the great advantage of fairly securing this object and at the same time giving to San Francisco an unrivaled



park quite within reach of its citizens. Let us hope that the few great Redwoods which survive above Santa Cruz may form an annex to this reservation. Unless something of this kind is speedily done, one of the peculiar glories of the state of California will in the next century be only a tradition."

DR. MAXWELL T. MASTERS has just distributed his paper "On the floral conformation of the genus *Cypripedium*," as a reprint from the *Linnean Society's Journal*, vol. xxii, pp. 402-422. After speaking of the general conformation of orchid flowers, he takes up the conformation in *Cypripedium*. This is followed by an account of the distribution of the vascular bundles, and then the main part of the paper is taken up with the teratology of *Cypripedium*. Only those cases are considered which "directly elucidate the plan of orchid-structure." These malformations are grouped under the heads of defect, excess, or perversion of the natural process of development, using the following terms: oligomery (a dimorous condition being the commonest), pleiomery (usually increased lips or stamens), partition (in which primarily simple organs become divided by fission), displacement, and peloria (tendency towards regularity).

PROF. A. B. SEYMOUR has just distributed as a reprint from the *American Horticultural Report*, a paper on "Orchard Rusts," which contains an interesting account of the *Gymnosporangium-Roestelia* forms. The paper is written in reply to complaints of injury to fruits in various localities. The condensed life history of these forms is very pleasantly and plainly put in these words: "These fungi have two distinct forms and two distinct phases of development, which occur on two very different kinds of plants, and would at first appear to have no connection whatever. But investigations have proved that each stage of growth in turn comes from the growth of the spores of the other stage. This is called alternation of generations. The rust upon apples develops through the summer, and toward autumn produces spores, which are carried to the cedar tree. Here they germinate and produce a different form of the fungus, which begins its growth in the fall, lives through the winter and matures in the spring, expanding into conspicuous, yellow, jelly-like masses. The spores now formed are carried in the air to the apple tree, or some tree of that group, where they produce the apple rust or quince rust, as the case may be."

THE *Gardener's Chronicle* (April 23) says that Mr. W. Sayer, an emissary of the Botanical Department of Victoria, presided over by Baron Sir Ferdinand von Mueller, accompanied by an English tourist—Mr. Alexander Davidson—succeeded lately in ascending Mount Bellenden-Ker, the highest mountain in tropical Australia. They had to cut their track for many miles through dense jungles of virgin forest, and they had previously to encounter the hostility of the savages. Two cataracts of considerable magnitude were discovered during the ascent. This mountain has a particular horticultural interest, it having been named at the suggestion of Robert Brown (like Mount Dryander), during Flinders' expedition, in honor of a botanist—Mr. Bellenden-Ker, the great investigator of iridaceous and amaryllideous plants in the early part of the century. When, in 1855, Baron Mueller went with Mr. Aug. Gregory to Northwest Australia (where then what now is so famous as the Kimberley country was discovered), he saw from the sea, he tells us, the bold outlines of Mount Bellenden-Ker, towering to 5,000 feet, and could well appreciate the feelings which prompted Robert Brown to suggest a botanical name for that mountain; indeed, unexpectedly, it has proved the only one in



all tropical Australia which has a really cool zone. In a discourse given at the School of Mines in Ballarat, and on some other public occasions, the baron pointed out many years ago that, if any Rhododendron, Vaccinium, Quercus, Impatiens, Begonia and other plants of the cooler Malayan regions existed at all in Australia, it would be on the almost constantly clouded and temperate heights of Mount Bellenden-Ker. This anticipation has now been verified as regards the two first mentioned genera, a Rhododendron (*R. Lochæ*, allied to *R. Javanicum*) and a Vaccinium of the section *Agapetes* having been discovered at an altitude of about 5,000 feet, where they are strangely associated with a new arborescent *Dracophyllum*, a *Spiræanthemum*, a new *Argophyllum*, and other extra Indian types of vegetation specifically here endemic. New genera for Australia from the same high region are, also, a *Didymocarpus*, a *Pentapanax*; besides these were obtained new species of *Helicia*, *Tristania*, *Morinda*, *Eugenia*, *Fagodea*, and some others. The remarkable manner in which the Malayan and Australian plants meet others of New Caledonian type on the summit of Mount Bellenden-Ker (among the Australian being such typical forms as *Trochocarpa* and *Arites*) renders this high, though not extensive, region singularly remarkable for phytogeography. A new undescribed Proteaceous genus occurs, we are told, lower down on the range, and should, on account of its many large seeds, prove a new tropical nut tree.

IN NOTICING in the *American Journal of Science*, Warming's "Entomophilous Flowers in Arctic Regions," Dr. Gray remarks: "Greenland is very poor in insects, especially of insects which perform an important part in the fertilization of the entomophilous blossoms of northern regions generally. Dr. Warming undertook a careful comparative study of these northern flowers, to learn whether those in Greenland were identical in floral biology with the same species in Europe. In many no differences were found, but in not a few certain modifications were detected in the Greenland flowers which rendered them more adapted to self-fertilization than those of the same species on the European continent, where the appropriate visiting insects are more abundant. In answer to the question whether the attractiveness of these blossoms for insects remain unaltered in Greenland, Dr. Warming is able to state that with three or four exceptions, the nectar secretions seemed not to be diminished; but that the odors were feebler, the size of corolla less, and the colors not so vivid as in the same species on the continent. As the entomophilous flowers of Greenland manifest an increased adaptation to self-fertilization, it might have been expected that the dioecious or polygamous tendency of some of them would disappear, but it proved not to be so. But the *Salices* were found to be remarkably fruitful, and it seems that they had become anemophilous."